TCT-438

Anaemia On Admission Is A Powerful Predictor For Worse Outcome In Patients Undergoing Primary Pci

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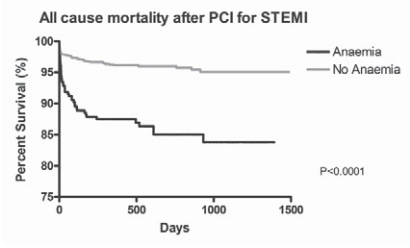
Background: Previous studies have demonstrated a relationship between pre-existing anaemia and in-patient mortality after percutaneous coronary intervention (PCI). There is limited data looking at the impact of baseline Haemoglobin and long term outcome after primary PCI.
Methods: Clinical information was analysed from a prospective database on 1657 STEMI patients who underwent Primary PCI between January 2004 and March 2009 at a London centre. Information was entered at the time of procedure and outcome assessed by all-cause mortality information provided by the Office of National Statistics via the BCIS/CCAD national audit. Anaemia was defined according to WHO definition of Hb greater than or equal to 12g/dl for females and 13 g/dl for males.
Results: 331 patients were anaemic at presentation. The anaemic cohort, were older (72.2 vs 62.4, p<0.0001), had higher incidence of diabetes (28% vs 16%, p<0.0001), hypertension (44 vs 36%, p = 0.01), hypercholesterolaemia (38 vs 30%, p = 0.007), previous PCI (12 vs 8%, p = 0.01), and previous MI (22% vs 11%, p <0.0001). There were similar incidences of three-vessel disease and cardiogenic shock. Over a 3-year follow up period there was significantly higher all cause mortality in the anaemic group compared to the normal Hb group (19.4% vs 12.5%, p<0.0001). After adjusting for co-morbidities, anemia remained an independent predictor of long -term adverse outcome (OR=2.4, 95% CI=1.1 -3.7, p<0.001). Patients with baseline anaemia who received a blood transfusion were significantly more likely to suffer an adverse outcome than those that did not receive a transfusion (21% vs 6%, P < 0.0001).



Conclusions: Patients presenting with anaemia undergoing primary PCI appear at significantly higher risk of an adverse outcome. This risk increases further in population receiving RBC transfusions during index hospitalization.

TCT-439

Impact of Bifurcation Target Lesion on Angiographic, Electrocardiographic and Clinical Outcomes of Patients Undergoing Primary PCI: A HORIZONS-AMI Substudy

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Background: The outcomes of bifurcation target lesions (BTL) in STEMI after primary PCI are unknown. We therefore analyzed the database from the large-scale, prospective randomized HORIZONS-AMI trial to assess the impact of BTL on angiographic, electrocardiographic and clinical outcomes in pts with STEMI undergoing primary PCI.
Methods: In HORIZONS-AMI, bifurcation lesions in which a provisional approach was planned were enrolled. By core laboratory angiographic assessment in 3,306 pts with STEMI undergoing primary PCI from 123 centers in 11 countries, 333 pts (10.1%) had at least 1 BTL and 2973 pts had no BTL. Outcomes were analyzed according to the presence or absence of at least 1 BTL.
Results: There were no differences in baseline characteristics between groups, except for lower left ventricular ejection fraction and more frequent LAD as the infarct-related artery in the BTL group (Table). BTLs were treated with mean 1.50±0.83 stents. BTLs required longer PCI time, longer fluoroscopy time, and higher contrast load, but TIMI 3 flow post PCI was observed more frequently. Complete ST-segment resolution by ECG core laboratory analysis was similar between the 2 groups. Nor were there significant differences in clinical outcomes during 1- and 2-year follow-up period in pts with vs. without BTL.
Table

Variable	Bifurcation target lesion (n=333)	No bifurcation target lesion (n=2973)	P Value
Age (yrs), median (IQR)	59.9 (53.4,70)	60.1 (52.4,69.6)	0.62
Gender	81.1%	76.7%	0.07
Diabetes	15.6%	16.3%	0.75
LVEF<40%	20.9%	13.9%	0.002
LAD as infarct-related artery	55.3%	38.8%	<0.0001
TIMI 3 flow after PCI	94.5%	91.3%	0.04
ST-resolution >70% after PCI	47.9%	50.3%	0.47
1-year follow-up			
all-cause death	4.6%	3.9%	0.61
reinfarction	3.7%	4.1%	0.71
ischemic TVR	7.7%	7.0%	0.62
definite stent thrombosis	2.5%	2.9%	0.66
2-year follow-up			
all-cause death	6.1%	5.2%	0.49
reinfarction	7.0%	6.0%	0.53
ischemic TVR	13.3%	12.5%	0.67
definite stent thrombosis	3.2%	4.0%	0.50

Conclusions: In this large multicentre study, primary PCI in BTL was performed in 10% of cases. Although the primary PCI procedure of BTLs was more complex , the acute results and late outcomes in pts with BTLs were comparable to those in pts without BTLs.

TCT-440

Association of N-Terminal-Pro-B-type Natriuretic Peptide and Six months Angiographic and Two years Clinical Outcomes of the Patients with ST Elevation Myocardial Infarction Undergoing Percutaneous Coronary Intervention

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Background: Elevated plasma level of N-Terminal-Pro-B-type Natriuretic Peptide (NT-proBNP, >300 pg/mL) has known to be associated with coronary artery disease (CAD). However, there have been limited data whether the association of NT-proBNP and the angiographic and **long term clinical outcome** of the patients undergoing percutaneous coronary intervention (PCI).
Methods: The study population consisted of **340** consecutive patients (pts) undergoing PCI enrolled in Korea University Guro Hospital from November 2005 to June 2008. We compared six months angiographic and two years clinical outcomes of pts in high NT-pro BNP group (>300 pg/mL, **n= 210, 61.8%)** as compared with Control group (≤ 300 pg/mL, **n= 130, 38.2%**).
Results: The baseline clinical and procedural characteristics showed that high NT-pro BNP group had more female gender, elderly pts, HTN, DM, dyslipidemia and less smoker, low left ventricular ejection fraction (LVEF). Six-month angiographic outcomes were similar between two groups except larger stent diameter in high NT-prBNP group and pts of high NT-pro BNP group had higher incidence of cardiac death (CD) and total major cardiac adverse event (MACE) up to 2 years. Multivariate analysis showed that high NT-pro BNP is independent risk factor of total MACE up to 2 years (Adjusted OR: 3.658, 95% CI:1.655-8.083, p-value=0.001). (Table).
Table: Six-month Angiographic and 2-year clinical outcomes

Variable, n (%)	high NT-pro BNP group (n=210 pts,1138 lesions)	Control group (n=130 pts, 198 lesions)	*P* value
LVEF (%)	41.04 ± 11.87	48.06 ± 9.69	0.000
Cardiogenic shock	10 (2.1)	9 (1.4)	0.354
Stent diameter, mm	3.19 ± 0.44	2.98 ± 0.41	0.000
Stent length, mm	25.39 ± 6.08	24.74 ± 6.08	0.374
Binary restenosis	20 (14.3)	8 (12.5)	0.805
Restenosis percent, %	21.04 ± 19.14	24.67 ± 20.65	0.369
Late loss, mm	0.52 ± 0.65	0.59 ± 0.71	0.228
Cardiac death	25 (21.0)	3 (4.3)	0.002
Q-wave MI	3 (2.5)	0 (0.0)	0.297
TLR	9 (8.2)	2 (3.2)	0.221
TVR	10 (9.1)	3 (4.8)	0.379
TVR-MACE	42 (25.0)	17 (17.2)	0.169
Total MACE	50 (42.0)	13 (18.6)	0.001

Conclusions : In our study, NT-proBNP level tended to be associated with CD and total MACE up to 2 years and NT-proBNP was an independent predictor for total MACE. We suggest that elevated NT-proBNP may play an important and sensitive role in long term clinical outcome with UA/NSTEMI undergoing PCI.

TCT-441

Elderly Patients Significantly Benefit From Invasive Strategy in Acute Myocardial Infarction and Cardiogenic Shock on Admission. Results from PL-ACS Registry

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The recommendations for invasive treatment of elderly patients (≥75 years of age) with acute myocardial infarction (AMI) and cardiogenic shock (CS) are not established. The aim of this analysis was to assess whether elderly patients with AMI and CS benefit from invasive treatment in terms of 6-month mortality.
Methods: Elderly patients with AMI and CS on admission (N=1976) were selected from the prospective, population-based Polish Registry of Acute Coronary Syndromes (N=163 462, from October 2003 to May 2007).
Results: Invasive treatment receive 509 (26%) of patients. They were younger (79.7±3.8y vs. 81.4 ±5.0y, p<0.0001), less frequently females (53% vs. 59%, p=0.019), had lower heart rate (84±31vs. 91±37, p=0.0002), higher systolic blood pressure (81±35 vs. 73±48, p=0.0004) and were more likely admitted with STEMI than NSTEMI (83% vs. 61%, p<0.0001). Non-elderly patients were treated invasively more likely (41% vs. 25%). In-hospital (36% vs. 55%, p<0.0001) and 6-month (66% vs. 81%, p<0.0001) mortalities were significantly lower with invasive treatment. The benefit of invasive treatment continue to be significant also after matching the groups with the propensity score method.

	Invasive	Non-invasive	P value
Number of patients after matching	472	472	
Age, years	79.9 ±3.9	79.8 ±4.0	0.89
Female sex, %	55	54	0.90
Smoking, %	13	12	0.43
Hypertension, %	58	56	0.60
Diabetes, %	33	32	0.63
Obesity, %	18	18	0.73
Prior myocardial infarction, %	22	21	0.58
Prior PCI, %	2	2	0.65
Prior CABG, %	4	4	0.51
Cardiac arrest before admission	13	13	0.85
Heart rate on admission, bpm	85 ±32	84 ±34	0.81
Systolic blood pressure, mmHg	80 ±32	78 ±47	0.48
NSTEMI, %	18	16	0.44
STEMI, %	82	84	
In-hospital mortality, %	56	71	<0.0001
6-month mortality, %	311 (65,9%)	387 (82,0%)	<0.0001